Rotation can be imparted to the helically threaded drive shaft **100** in a variety of ways. In the preferred embodiment, a stepper motor **102** is coupled to a slip clutch **104** which is used to turn a drive shaft **106**. A pulley **108** is mounted on the drive shaft **106**. A comparable pulley **109** is mounted to the helically threaded shaft **100**. A belt **110** couples the two pulleys together so that rotation of the drive shaft **106** causes the helically threaded shaft **100** to rotate. The stepper motor **102** and slip clutch **104** are designed so that the drive shaft **106** can be rotated in a first direction to raise the horizontal platform **81** and in a second direction to lower the horizontal platform **81**. Rotation of the drive shaft **106** can be monitored by a rotary encoder **112**.

In the preferred embodiment, the apparatus also includes an electronic interface **120** which communicates with an external computer via SCSI-II protocol over a SCSI-II connector **122**. FIG. **10** is a block diagram of electronic interface **120**. The interface **120** acts as a target SCSI device with a selectable address of 0 to 7. The address is set using the dip switch bank (not shown) electrically coupled to the interface **120**.

As shown in FIG. **10**, the interface **120** includes a microcontroller **122** coupled to a clock **125**, application memory **126**, static RAM memory **128**, and configuration memory **130**. Also coupled to the microcontroller **122** are various interfaces, including an RS-232C interface **132** and a SCSI interface **134**, and three digital input ports **136**, **138** and **140**. The digital input port **136** couples the address selection dip switches to the microcontroller **122**. It also is used to transmit printer status signals to the microcontroller **122**. Digital input port **138** is used to couple the various switches on the unit to the microcontroller **122**. Digital input port **140** couples the elevator's encoder **112** to the microcontroller **122**. Finally, motor drivers **142** are used to couple the stepper motor **102**, the solenoid **94** and the various motors associated with the print station **20**, recording station **30**, verifying station **40**, clearing station **50**, reject station **60**, and the slidable disk tray **70**.

The interface **120** operates in conjunction with an appropriately programmed external computer to control the operation of the components described above. For example, the picker **80** is controlled by the interface **120**. The elevator **95** can be used to raise and lower the horizontal plate **81** along approximately a 12 inch path based upon control signals coming to it through the interface **120**. Specifically, the interface **120** is connected to the stepper motor **102** and sends signals to the stepper motor **102** turning it on and off and controlling the direction in which it turns the drive shaft **106**. The interface **120** is also connected to the rotary encoder which senses whether the drive shaft **106** is turning to determine whether the stepper motor **102** is stalled. A limit switch can also be connected to the interface **120** to send a signal indicative of the elevator **95** reaching a "home" position. The interface **120** likewise controls the solenoid **94** to move the fingers **83**, **84** and **85** between the gripping and non-gripping position.

The interface **120** also controls movement of the slidable disk tray **70**. Specifically, the DC motor which moves the disk tray **70** and a pair of limit switches are electrically coupled to the interface **120**. One limit switch sends a signal to the interface **120** when the tray **70** reaches a first position in which one of the disk holder **71** is centered beneath the fingers **83**, **84** and **85** of the picker **80**. The other limit switch sends a signal to the controller interface **120** when the tray **70** reaches a second position in which the disk holder **72** is centered beneath the fingers **83**, **84** and **85** of the picker **80**. It is also possible to provide a proximity sensor coupled to the interface **120** and a second output line with a different resistance value between the interface **120** and the motor. If this configuration is used, the tray **70** can move quickly until its presence is sensed by the proximity sensor and then more slowly until it hits one of the limit switches and stops.

Movement of the bin **62** of the reject station **60** is also controlled by the interface **120**. Such control is accomplished by electrically coupling the motor to the interface **120** and providing a bin open limit switch and a bin closed limit switch which send signals representative of the drawer's position to the interface **120**.

The cleaning station **50** is controlled by the interface **120** in a manner identically to the way the reject station **60** is controlled. The motor and a pair of limit switches are all coupled to the interface **120** so the interface **120** controls the motor and receives signals from the limit switches indicative of the position of the brush **51**. In fact, to reduce cost, the brush **51** can be mounted to the front edge of the reject bin **62**.

The recording drive, verifying drive and the label printer used in constructing the system will all typically include an interface port that allows them to be coupled to the interface **120**. This port could be, for example, a six pin TTL port or a six pin RS232C port for the printer. The port will in all likelihood be a fifty pin SCSI-2 port for the drives. This coupling allows the interface **120** to control the opening and closing of the drawers **24**, **32** and **44**. It also allows for data to be transferred between the external computer on the one hand, and the printers and drives on the other hand.

Each of the LED's and control switches are also coupled to the interface **120**. The interface **120** energizes the LED's to indicate the status of the system. Each LED is a dual color red/green LED. The LED's are used to indicate whether (a) the system is ready or not; (b) the system requires some attention; (c) the disks are O.K.; (d) the input tray **71** is empty; (e) the reject station **60** is full; and (f) the output tray **72** is full. The interface **120**, in order to generate such messages using the LED's must receive status signals from sensors able to indicate when the input tray **71** is empty, when the reject station **60** is full, and when the output tray **72** is full.

In essence, the interface provides the firmware required to control the system and further provides a mechanism by which the system communicates with an external computer and the host software run by the external computer. In view of the description of the system and its features provided above, its operation will now be described.

During the operation of the unit the software loaded on the external computer will receive a command to produce a disk or group of disks. The software will send signals to the interface **120** to cause each of the following steps to occur. First, the slidable disk tray **70** to move out so that the disk holder **71** containing a stack of blank disks is positioned directly below the fingers of the picker **80** so that the fingers are centered over the holes through the disks. A limit switch sends a signal through the interface **120** to the external computer when the disk tray **70** is in the correct position. Signals are then sent by the computer through the interface **120** to the stepper motor **102** enabling it to cause the elevator **95** to move the grasping mechanism **82** down toward the disks. At the same time, a signal is sent by the computer through the interface **120** to actuate the solenoid **94** so that the solenoid **94** retracts the fingers **83**, **84** and **85** so the fingers can pass through the hold in the top disk **14**. The solenoid **94** then is shut off so that the spring **92** forces the fingers outwardly to grip the top disk **14**. The computer then